State of Oregon
Department of Environmental Quality **Memorandum**

Date: April 5, 2016

To: Eva DeMaria, EPA Region 10 Remedial Project Manager
Davis Zhen, EPA Region 10 Site Cleanup Unit 2 Manager

From: Alex Liverman, DEQ Portland Harbor Stormwater Coordinator
Matt McClincy, DEQ Portland Harbor Source Control Coordinator

Through: Scott Manzano, DEQ NWR Cleanup Manager

Subject: EPA Memo on comments on Brazil draft Source Control Decision March 22, 2016

DEQ finalized the Source Control Decision and No Further Action Memorandum for the Brazil site, in consideration of EPA's comments. While the transmittal email indicated that DEQ should consider the general comments as important, this memorandum provides brief responses in italics to each of EPA's comments presented in the subject memorandum. DEQ appreciates EPA's commitment to improving the understanding of DEQ's Source Control Program by staff and management who have recently transitioned into the Portland Harbor project, and we look forward to your continued coordination.

General Comments

1. Data gaps in site characterization identified by EPA include the following:

a. EPA recommends that DEQ consider additional characterization of stormwater including observations and sampling of stormwater runoff at the Site. If sheet flow is found to occur at the Site, stormwater sampling should be performed conforming to section D.5 of the Joint Source Control Strategy (JSCS) guidance.

As noted in the closing paragraph of Section 4.3.1 of the SCD memo, observations to evaluate sheet flow were made during unusually heavy rains and saturated soil condition in October 2015 and January 2016. No sheet flow was observed, therefore, no stormwater sampling was conducted or necessary.

b. Contaminants remaining in soil at the Site have the potential to leach and impact groundwater based on concentrations exceeding soil screening levels, uncertainties in the depth to groundwater, and the potential for increased infiltration of stormwater at the gravel backfilled excavation area. No boring wells or monitoring wells were installed to determine the depth to groundwater and contaminant concentrations in groundwater beneath the Brazil property. EPA agrees that the lines of evidence presented in the draft SCD/NFA, which include an estimation of depth to groundwater at an adjacent property, limited mobility of contaminants in soil, and distance to the river, indicate a low potential for impacts to the river via the direct groundwater discharge pathway. However, EPA recommends that DEQ consider evaluation of groundwater at the Site because of the potential for residual contaminants in soil to leach and affect groundwater. Per JSCS Section 5.2, an evaluation of the groundwater pathway should include evaluation of potential preferential pathways such as utility line backfill and stormwater lines located below the water table that may result in groundwater discharge to the river.

The JSCS uses sediment PRGs as a screen for upland soil that can potentially be transported to the river and accumulate in river sediment above the PRG. None of the sediment PRGs address the potential for contaminants to leach and migrate. Sediment PRGs are based on direct toxicity or exposure to the food web via bioaccumulation. While the upland source control program supports the in-water remedy, it is important to also consider the scope of the in-water remedy in evaluating the potential for an upland site to be of concern or de minimis. The residual total PAH concentrations in soil at the Brazil site are approximately an order of magnitude below the total PAH alternative E RAL. With the exception of three samples (SS-2 (255 ug/kg), DP-3-615 (812 ug/kg), DP-6-615 (1,484 ug/kg) all aroclor concentrations are below the alternative E RAL. This means that there are approximately 2000 acres of buried sediment **in-river** *that contain similar concentrations of PAHs and aroclors which were not evaluated by EPA for leaching and migration in the EPA optimized remedy. Consequently and consistent with EPA's determination that low level concentrations in in-water sediment are not a concern*

for the optimized remedy, DEQ has determined that a small area of low level contamination 22 to 28 feet above the water table and a half mile from the river is not a potentially significant source.

To further support DEQ's, position, residual soil concentrations of PAHs, lead, bis(2-ethylhexyl)phthalate and PCB Aroclors were screened against DEQ's risk-based concentrations for leaching to groundwater. These can be found at http://www.deq.state.or.us/lq/pubs/docs/RBDMTable.pdf. These values are considered protective of groundwater use for drinking water at relative small sites (i.e., groundwater less than 3 meters from the surface and the source is less than a quarter of an acre). With the exception of one detection of naphthalene, all PAHs were below the residential screening level value. This detection of naphthalene was below the urban residential screening level value. Site TCLP data for lead indicated that the remaining lead concentrations were below levels that would exceed the MCL. Bis(2-ethylhexyl)phthalate concentrations are below the residential screening level value. One Aroclor sample exceeded the urban residential screening level value.

DEQ concludes that even if these contaminants leached from soil into groundwater more than 20 feet below the surface, it is unlikely that concentrations would be harmful, even if a preferential pathway through utility lines existed.

2. The soil screening evaluation and data presentation should be further developed to support the decision that no source control measures are needed at the south lot. Tables 1 through 3 indicate that contaminant concentrations in soil samples collected from the south lot exceed Portland Harbor screening level values (SLVs) for certain contaminants at each sampling location (DP-8, DP-9, DP-11, DP-12, and DP-13), including exceedances for arsenic, lead, total polychlorinated biphenyls (PCBs), and Bis(2-ethylhexyl)phthalate. The SCD compared soil contaminant concentrations with the DEQ upland site rank order curves for stormwater sediments (Appendix E of the DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites) as a line of evidence in the source control evaluation. However, rank order curve charts were not presented in the SCD/NFA memorandum to support this evaluation. The JSCS SLVs and Portland Harbor Preliminary Remediation Goals (PRGs) should be used as criteria to evaluate source control. If the rank order curves are to be used in the source control evaluation, the use should be a supporting line of evidence. The rank order curves are not meant to supersede SLVs or PRGs. Rank order curve data should be included in the source control evaluation to document this line of evidence supporting the SCD.

Exceedances of upland soil SLVs are all within one order of magnitude. Further, while the total PCB SLV was moderately exceeded, none of the individual Aroclor SLVs were exceeded. Coupled with the facts that all contaminant concentrations were below the flat portion of the applicable rank order curves and that the potential for soil from the site to be mobilized to the river is exceedingly small, DEQ finds that source control at the site is sufficient to protect the EPA in-water remedy. Although the rank-order curves with site data included were not presented with the memo, the data table can be readily compared to the curves available in Appendix E of DEQ's Guidance at: http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm. The memo reports the results of DEQ's evaluation of the data in consideration of the curves, rather than presenting the curves themselves. Finally, as EPA's clean-up is specific to in-water sediment, there are no applicable PRGs for upland soil or stormwater solids. Consistent with the JSCS SLVs, the PRGs will be used to conduct an initial source control screening evaluation. Where exceedances exist, the need for source control measures will be based on a lines-of-evidence and weight-of-evidence evaluation.

3. Characterization of surficial soil in the south lot is limited and may not be sufficient to support the decision that source control measurements are not needed in the south lot. Because stormwater generally interacts with surface soil, it is important that soil in the upper few inches be tested for stormwater contaminants of concern. Soil samples were collected at seven locations in the south lot. Tables 1 through 3 indicate that only one location included sample collection in the upper 6 inches of soil [DP-12(0-1)], five of the locations included sample collection below a depth of 6 inches, and one sample (SS-2) had no indication of the sample depth. Soil concentrations for the stormwater source control evaluation for the south lot are likely biased low because most of the samples were collected below a depth of 6 inches. As an example, the soil removal for the north lot was based upon soil data that showed contaminant concentrations were significantly higher in the soil samples collected from the surface than from samples collected below 6 inches.

As noted in the Phase II Report referenced in the SCD memo, gravel cover was removed from sampling locations such that only soils were collected for analysis. Gravel cover ranged from 0 to 2 feet in various locations of the site, which accounts for the seeming gap at a few locations that would have missed surface soil. DEQ clarified this in Section 4.2.1 of the SCD memo.

4. The historic and current status of onsite stormwater conveyance features need clarification both within text and figures. Section 4.2.3 describes an "existing stormwater line" while Section 4.3.1. describes "a single north lot trench drain and catch basin to a non-functioning conveyance pipe." It is EPA's understanding that the aforementioned are one and the same and that it has been cut, capped, and filled. Also see Specific Comment #1.

The limited stormwater conveyance features on the site were never shown to be functional, yet they existed. DEQ inserted the word "former" in SCD memo sections discussing information about these features and confirmed that the current status is represented correctly as abandoned.

Specific Comments

1. Section 2.0, Site Description, second paragraph – The description of the surface water flow at the property is unclear. The text describes a natural drainage feature and a concrete channel routing stormwater flow to the City of Portland piped conveyance system at inlet AMZ 188 and references Figure 2 of the memorandum. Figure 2 only shows a "drainage ditch" on the property that is routed to a City of Portland storm drain input in a different location than AMZ 188. No natural drainage feature or concrete channel is shown on Figure 2 or any other figure in the memorandum. EPA recommends clarifying the onsite stormwater conveyance features and connections to the City of Portland storm drain in the text and clearly showing these on Figure 2.

The status, location and responsible entity for surface water drainage at the site are in dispute, which leads to the lack of clarity in the SCD memo, though these facts are inconsequential to the intent of the memo. DEQ's observations support the location of the concrete channel as represented on Figure 2. DEQ clarified language in the memo regarding the discharge point being into a trash rack and manhole south of inlet AMZ 188.

2. Section 4.2.1Nature and Extent of Contamination –EPA recommends that the SCD/NFA memorandum expand the information on the discovery of the roadway contaminants, including the other sampling conducted in 2012 (see section 3). The expanded information should provide a comparison of the roadway contaminants to onsite contaminants in the VCP Report, the location of these discovered contaminants illustrated on a map, and a brief summary of their potential to contribute to contaminant transport from the Site to the river.

DEQ is not aware of any roadway contaminant-specific studies of discoveries. City of Portland investigations have been conducted throughout the basins on stormwater conveyances lines, features, and various contributions to them. However, roadway contaminants were not a specific topic of those investigations. DEQ did include pertinent results of City investigations in the evaluation.

3. Section 4.3.1, Lines of Evidence Evaluation - last paragraph: The text states that stormwater infiltrates on Site in the recently filled bed of clean gravel. The SCD should provide documentation that the fill meets DEQ Clean Fill Criteria and Portland Harbor PRGs.

The fill is quarry run gravel. EPA has made the request to characterize rock such as this in the past. Because quarried products should be free of contamination, DEQ does not require characterization of gravel from quarried sources prior to placement at state-led cleanup sites. In addition, because EPA's clean-up focus is specific to in-water sediment, there are no applicable PRGs for upland soil or gravel. Considering that clean gravel was specified in the Brazil work plan and stormwater does not leave the site even during periods of unusually heavy rain and saturated soil conditions, DEQ is not concerned that any marginal contamination inadvertently associated with gravel fill is being transported to the river.